

T+T NUS 2006C

**Calculation Package  
for Data**

**included in**

**GNEP EIS  
Section 4.5.10 Oak Ridge National Laboratory Environmental  
Justice**

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## Supporting Information for Section 4.5.10 Environmental Justice (for Oak Ridge National Laboratory)

This discussion supports the identification of minority and low-income populations within 50 miles of the Oak Ridge National Laboratory (ORNL).

### Minority and Low-Income Populations

Procedures for the determination of minority and low-income populations found in Section 4.5.10 of the Environmental Impact Statement are discussed in this section. Appendix D of the "Procedural Guidance for Preparing Environmental Assessments and Considering Environmental Issues" released by the U.S. Nuclear Regulatory Commission (NRC), Office of Nuclear Reactor Regulation, May 24, 2004, was used to identify minority and low-income populations for this Environmental Justice review.

Typically, the potential area impacted by environmental issues is within a 50-mile radius of the site (NRC 2004). TtNUS decided to determine the minority populations and low-income populations for all census block groups within 50 miles of the centroid of ORNL. The centroid was determined using ArcGIS® 9.1. The resulting coordinate (UTM NAD 83, Zone 16, meters) is N 3,983,034.2, E 201,093.2. A 50-mile radius was drawn from this coordinate. Block groups were used because the block group geographic area is small enough so as to not dilute a potential minority or low-income population within the larger general population (NRC 2004). U.S. Census Bureau Summary File 1 (USCB 2000a) containing race data and Summary File 3 containing low-income household poverty data (USCB 2000b) were obtained for applicable block groups in Kentucky, North Carolina, and Tennessee. For each minority category (Black or African American, American Indian or Alaskan Native, Asian, Native Hawaiian or Other Pacific Islander, Other Races, and Two or More Races), the percentage of the total population was calculated for each block group. The Aggregate category was also analyzed. The Aggregate of the minorities represents the total population of the minority races (Black or African American, American Indian or Alaskan Native, Asian, Native Hawaiian or Other Pacific Islander, Other Race, and Two or More Races). The Hispanic Ethnicity category is NOT included in the aggregate of minorities because the U.S. Census Bureau treats race and Hispanic origin (ethnicity) as two separate and distinct concepts. People who are Hispanic may be of any race. People in each race group may be either Hispanic or Not Hispanic. Each person has two attributes, their race (or races) and whether or not they are Hispanic. Because each person is counted in a race category and in either the Hispanic or not Hispanic category, including the Hispanic ethnicity in the "aggregate race" category would double count a number of individuals. As such, the race categories and the Hispanic Ethnicity categories are considered separately. The percentage of low-income households was also calculated for each block group.

The minority demographic data and low-income data were then attributed to block group spatial data in ArcGIS® 9.1 to become a shapefile coverage containing demographic and low-income data for every block group. This allowed the demographic and low-income data to be queried spatially and by attribute.

In order to identify whether a minority or low-income population exists, an area larger than and that encompasses the entire area of potential impact must be identified for comparative analysis (NRC 2004). This area is called a geographic area. TtNUS defines the geographic area to be the states of Kentucky, North Carolina, or Tennessee (depending on which state the block group falls into).

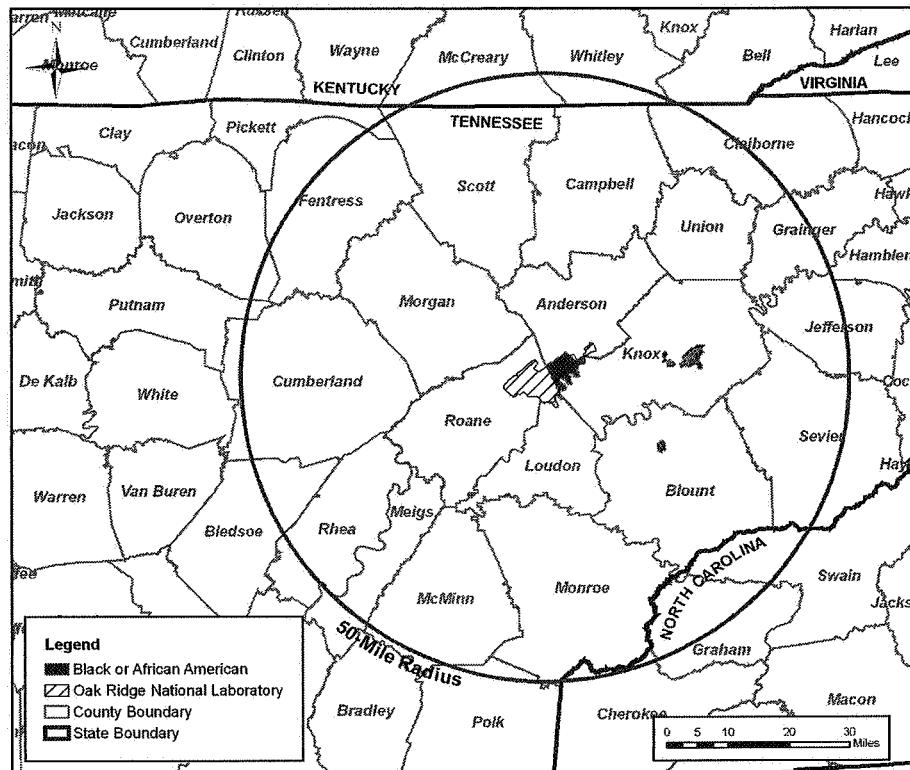
Census data for Kentucky characterizes 7.3 percent of the population as Black or African American; 0.2 percent American Indian or Alaskan Native; 0.7 percent Asian; 0.04 percent Native Hawaiian or other Pacific Islander; 0.6 percent some other race; 1.1 percent multi-racial (two or more races); 9.9 percent aggregate of minority races; and 1.5 percent Hispanic ethnicity (TtNUS 2006).

Census data for North Carolina characterizes 21.6 percent of the population as Black or African American; 1.2 percent American Indian or Alaskan Native; 1.4 percent Asian; 0.05 percent Native Hawaiian or other Pacific Islander; 2.3 percent some other race; 1.3 percent multi-racial (two or more races); 27.9 percent aggregate of minority races; and 4.7 percent Hispanic ethnicity (TtNUS 2006).

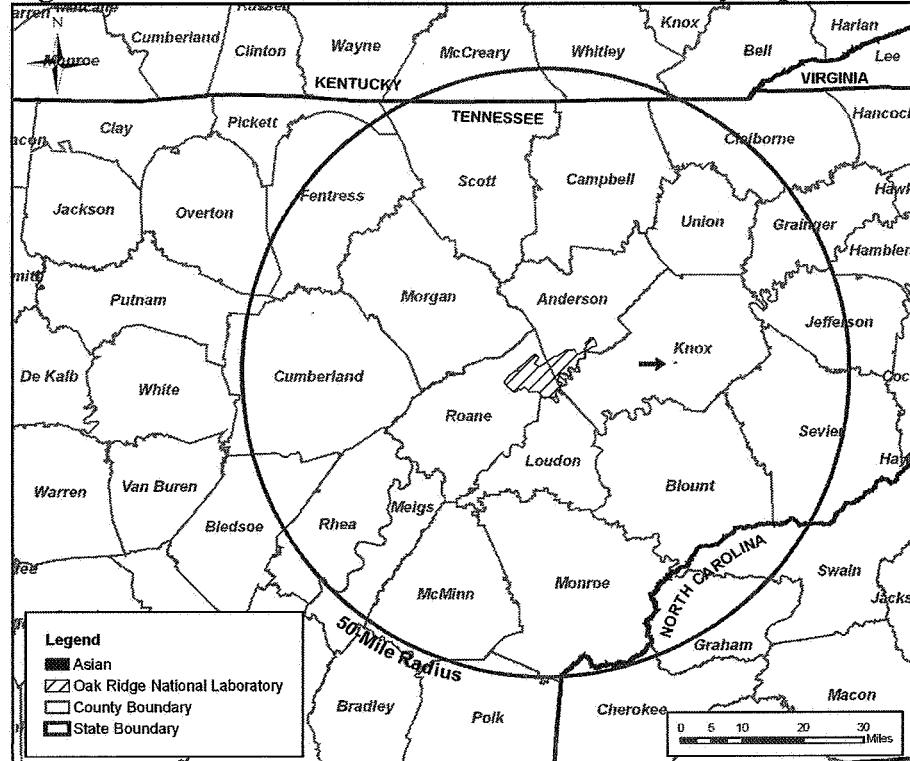
Census data for Tennessee characterizes 16.4 percent of the population as Black or African American; 0.3 percent American Indian or Alaskan Native; 1.0 percent Asian; 0.04 percent Native Hawaiian or other Pacific Islander; 1.0 percent some other race; 1.1 percent multi-racial (two or more races); 19.8 percent aggregate of minority races; and 2.2 percent Hispanic ethnicity (TtNUS 2006).

A minority population is considered to be present if: 1) the minority population in the census block group exceeds 50 percent or 2) the minority population percentage of the block group is significantly greater (typically at least 20 percentage points) than the minority population percentage in the geographic area (NRC 2004). A low-income population is considered to be present if: 1) the low-income population in the census block group exceeds 50 percent or 2) the percentage of households below the poverty level in an environmental impact area is significantly greater (typically at least 20 percentage points) than the low-income population percentage in the geographic area (NRC 2004). State percentages for race and low income were obtained from the USCB (USCB 2000c, 2000d). Queries were performed on the block groups within 50 miles of ORNL. Any block group falling wholly or partially within the 50-mile radius was identified if that block group contained a "minority population."

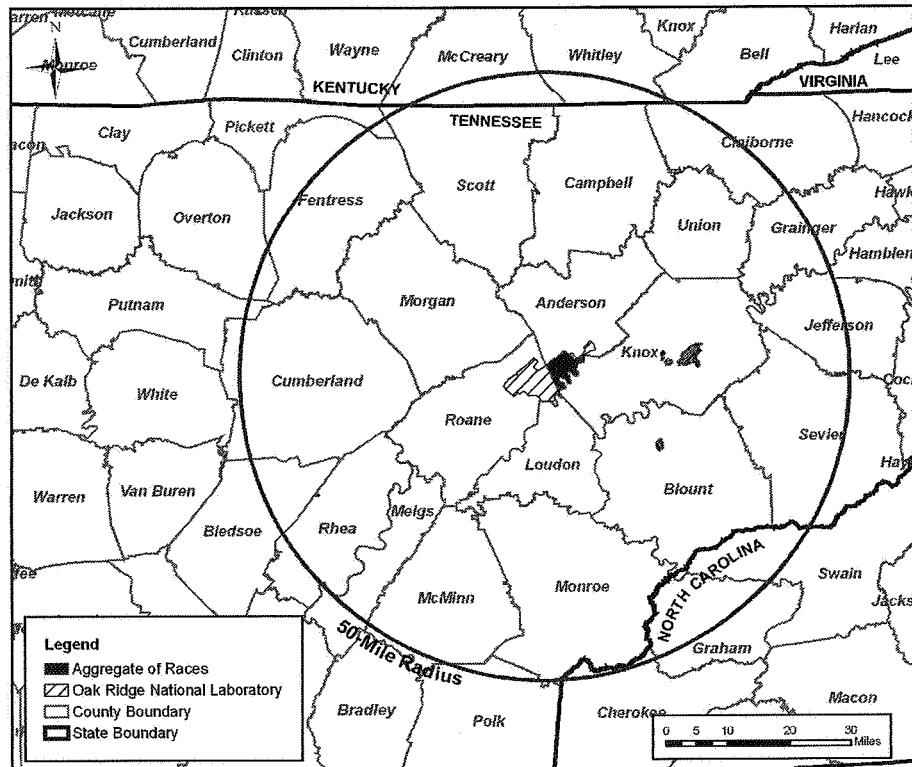
Table 1 presents minority and low-income data for all block groups within 50 miles of ORNL. For each minority category, Table 1 identifies for each block group, whether the minority or low-income percentage exceeds the state percentage by at least 20%, or exceeds 50%. For Kentucky, North Carolina, and Tennessee, exceeding the state percentage by at least 20% is the limiting criterion in all cases. Table 2 presents a summary, by county, of block groups containing significant minority or low-income populations for the "20% greater than the state percentage." A total of 775 block groups fall within 50 miles of ORNL (Table 2). Minority populations exist within 50 miles of the ORNL site for the Black or African American, Asian, Aggregate of Races, and Low-Income categories. Figures 4.5.10-1 through 4.5.10-4 (from Section 4.5.10 of the EIS) are shown below to identify locations of the minority and low-income block groups.



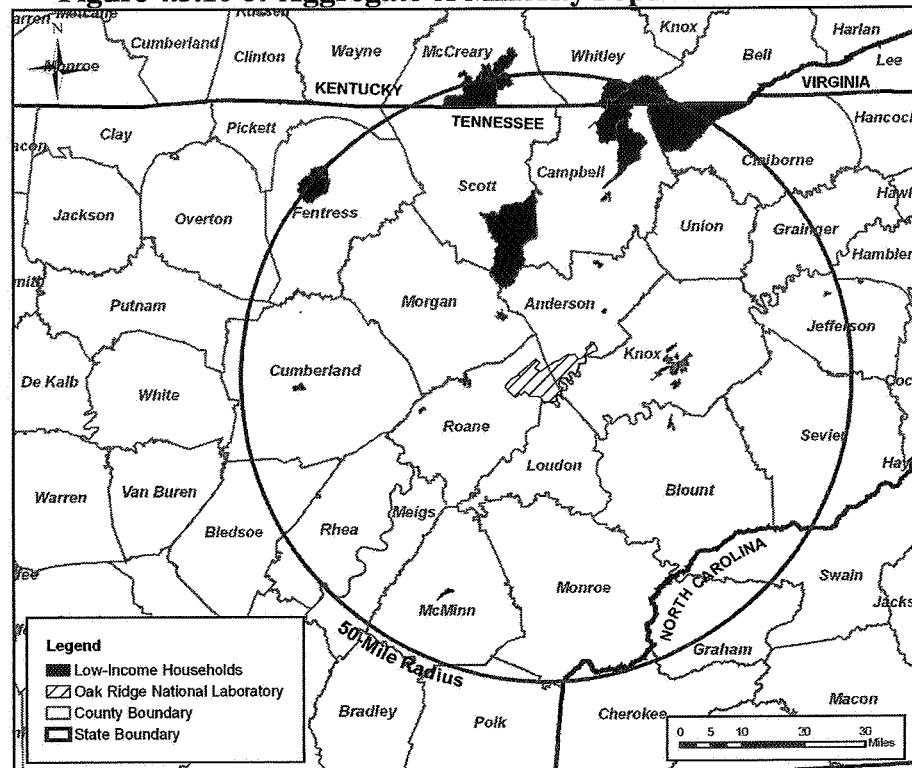
**Figure 4.5.10-1. Black or African American Minority Population.**



**Figure 4.5.10-2. Asian Minority Population.**



**Figure 4.5.10-3. Aggregate of Minority Population.**



**Figure 4.5.10-4. Low-Income Households.**

**References:**

- NRC (U.S. Nuclear Regulatory Commission). 2004. *Procedural Guidance for Preparing Environmental Assessments and Considering Environmental Issues*. Office of Nuclear Reactor Regulation. May 24.
- USCB (U.S. Census Bureau). 2000a. *Summary File 1: Census 2000*. Available at <http://www.census.gov/Press-Release/www/2001/sumfile1.html>. Accessed August 31, 2006.
- USCB (U.S. Census Bureau). 2000b. *Summary File 3: Census 2000*. Available at <http://www.census.gov/Press-Release/www/2002/sumfile3.html>. Accessed August 31, 2006.
- USCB (U.S. Census Bureau). 2000c. *Summary File 1 (race) data for Kentucky, North Carolina, and Tennessee*. Available at <http://www.factfinder.com>.
- USCB (U.S. Census Bureau). 2000d. *Summary File 3 (low-income) data for Kentucky, North Carolina, and Tennessee*. Available at <http://www.factfinder.com>.











7	14	1	1	0	422	97.01
72.17	0	0	0	0	910	75.14
9.46	0	4	0.46	0	114	13.15
24.24	0	3	0.24	0	0.46	0
6.83	0	5	0.34	0	2.06	0
13.96	0	6	0.23	0	25	0
9.25	0	1	0.17	0	4	0
5.39	0	5	0.11	0	11.13	0
4.62	0	1	0.24	0	1.13	0
7.71	0	2	0.18	0	1.08	0
3.93	0	4	0.52	0	0.65	0
4.38	0	6	0.32	0	0.65	0
71.54	1	1	0.13	0	0.65	0
54.02	1	2	0.89	0	0.65	0
37.43	1	3	0.43	0	0.65	0
78.01	1	0	0.00	0	0.65	0
18.29	0	7	0.53	1	0.65	0
27.39	0	3	0.38	0	0.65	0
42.41	1	5	0.42	0	0.65	0
5.59	0	5	0.35	0	0.65	0
2.59	0	6	0.60	0	0.65	0
5.25	0	10	0.89	0	0.65	0
2.51	0	2	0.23	0	0.65	0
3.31	0	4	0.31	0	0.65	0
3.31	0	2	0.26	0	0.65	0
7.45	0	2	0.13	0	0.65	0
7.45	0	3	0.25	0	0.65	0
10.03	0	8	0.66	0	0.65	0
3.55	0	1	0.10	0	0.65	0
16.05	0	1	0.18	0	0.65	0
7.48	0	0	0.00	0	0.65	0
55.81	1	0	0.00	1	0.65	0
75.93	1	7	0.60	2	0.65	0
93.86	1	2	0.16	0	0.65	0
92.93	1	1	0.08	0	0.65	0
92.39	1	0	0.00	0	0.65	0
57.67	1	3	0.18	0	0.65	0
70.76	1	0	0.00	2	0.65	0
1.77	0	4	0.42	0	0.65	0
5.14	0	3	0.29	0	0.65	0
1.56	0	0	0.14	0	0.65	0
4.29	0	8	0.57	0	0.65	0
5.71	0	5	0.31	0	0.65	0
50	3.10	0	0.0000	0	0.65	0
10	0.63	1	0.0626	9	0.65	0
2.18	2	0.21	0	0.0626	9	0
0	0	0	0	0	0.65	0
0	0	0	0	0	0.65	0
0	0	0	0	0	0.65	0
50	3.10	0	0.0000	0	0.65	0
15	0.94	0	0.0000	0	0.65	0
6	0.54	0	0.0000	0	0.65	0
0	0.00	0	0.0000	0	0.65	0
0	0	0	0.0000	0	0.65	0
4	0.51	0	0.0000	0	0.65	0
15	1.48	0	0.0000	0	0.65	0
1	0.08	0	0.0000	0	0.65	0
1	0.12	0	0.0000	0	0.65	0
1	0.12	0	0.0000	0	0.65	0
2	0.32	0	0.0000	0	0.65	0
9	0.80	0	0.0000	0	0.65	0
0	2	0.1696	3	0.32	0	0
0	1.10	0	0.32	0	0.32	0
0	13	0	0.87	0	0.38	0

















Table 2